

Art Unit: 3700

Mrd 04/04/02 CLMPTO

1-12 (cancelled).

13. (New) A method for estimating a memory-enabled transmission channel, comprising the steps of:

determining a first estimation \hat{H} of a pulse response of the memory-enabled transmission channel;

performing an estimation of an additive interference of the memory-enabled transmission channel; and

performing a correction of the first estimation while taking into consideration the estimation of the additive interference.

14. (New) The method according to claim 13, wherein the step of determining the first estimation is performed by a matched filter.

15. (New) The method according to claim 14, whereof:
the matched filter is given by

$$\hat{H} = \frac{1}{\gamma} \cdot G^T \cdot \mathbf{g}_{\text{out}},$$

where

$$G = \begin{pmatrix} r_0 & r_{N-1} & \cdots & r_1 \\ r_{N+1} & r_N & \cdots & r_2 \\ \vdots & \vdots & \ddots & \vdots \\ r_{N+N-1} & r_{N+N-2} & \cdots & r_N \end{pmatrix}$$

and

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13. (New) A method for estimating a memory-enabled transmission channel, comprising the steps of:

determining a first estimation \hat{h} of a pulse response of the memory-enabled transmission channel;

performing an estimation of an additive interference of the memory-enabled transmission channel; and

performing a correction of the first estimation while taking into consideration the estimation of the additive interference.

14. (New) The method according to claim 13, wherein:

the step of determining the first estimation is performed by a matched filter.

15. (New) The method according to claim 14, wherein:

the matched filter is given by

$$\hat{h} = \frac{1}{\gamma} \cdot G^T \cdot \mathbf{e}_M,$$

where

$$G = \begin{pmatrix} r_{11} & r_{12} & \cdots & r_{1N} \\ r_{21} & r_{22} & \cdots & r_{2N} \\ \vdots & \vdots & \ddots & \vdots \\ r_{(M+N-1)1} & r_{(M+N-1)2} & \cdots & r_{(M+N-1)N} \end{pmatrix}$$

and

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19. (New) The method according to claim 13, wherein:

the correction of the first estimation \hat{h}_k of the kth component, k ∈ {1, ..., W}, of estimation vector $\hat{\mathbf{h}}$ of the pulse response \mathbf{h} is given by

$$\hat{h}_k = \begin{cases} 0, & \text{if } \hat{h}_k^2 < \sigma^2 / \gamma \\ \text{otherwise } \hat{h}_k \end{cases}$$

20. (New) The method according to claim 13, wherein:

the correction of the first estimation \hat{h}_k of the kth component, k ∈ {1, ..., W}, of estimation vector $\hat{\mathbf{h}}$ of the pulse response \mathbf{h} is given by

$$\hat{h}_k = \sqrt{\theta(\hat{h}_k^2 - \sigma^2 / \gamma)} \cdot \frac{\hat{h}_k}{|\hat{h}_k|}, \quad \text{if } \hat{h}_k \neq 0, \text{ and}$$

otherwise

$$\hat{h}_k = 0$$

21. (New) The method according to claim 13, wherein:

the correction of the first estimation is given by a POCS algorithm.

22. (New) The method according to claim 13, wherein:

the correction of the first estimation is given by a MMSE algorithm.

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23. (New) The method according to claim 22, wherein:
the MMSE algorithm is given by

$$\hat{h} = (G^T \cdot G + \sigma^2 \cdot I)^{-1} \cdot G^T \cdot g_{st}$$

I being the unit matrix.

24. (New) A device for estimating a memory-enabled transmission channel, comprising:
a channel estimator;
an estimator of an additive interference, the channel estimator and the estimator of the
additive interference act on a received signal; and
a channel estimation correcting element for correcting a signal of the channel estimator
while taking into consideration an output signal of the estimator of the additive interference.

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